FALL 2019

Instructor: Harry Wechsler wechsler@gmu.edu ENG 4448

Biometrics / Identity Management – 80854 – CS 667 001

Art and Design Building L008 – T 4:30 – 7:10

Office Hours: T 3:45 – 4:15 and 7:30 – 8:00

(Tentative) Course Description: Learn basic principles and methods for automatic personal authentication and smart identity management. Biometric technologies include face, fingerprint, iris, and gait recognition. **Topics** include (1) Biometrics and Forensics, (Modular) System Design and Architectures, Explanation and Prediction, and Learning and Model Selection; (2) Protocols and Standards, Benchmarks and Metrics, Interoperability, Performance Evaluation, and Cross-Validation; (2A) Software Platforms and Hardware; (3) Probability, Bayes and Maximum a Posteriori (MAP) Classification, Naïve Bayes, and Statistics; (4) Image Analysis and Pattern Recognition, (Eigen-Faces) PCA and LDF / Fisher Face Representations, Video Analysis, and Visual Query Answering. **Advanced Topics** include Data Fusion and Multi-Modal Biometrics, Deep Learning, Generative Adversarial Networks (GAN), De-Identification and Re-Identification, Deep Fakes and Spoofing, Aging and Plastic Surgery, and Transfer Learning. **Interoperability** covers Data Sets and Demographics, in the Wild Biometric Environments, and Scalability.

(Weekly) Lecture and Discussion: (1) Background and Methods; (2) Critical Thinking; (3) Challenges and Emerging Themes; and (4) Ethics, Privacy, and Security.

https://registrar.gmu.edu/calendars/fall-2019/

First day of classes: August 27

Fall Break: October 15

Last day of classes: December 3

https://registrar.gmu.edu/calendars/fall-2019/final-exams/

Exam Date and Time: T, 12/17, 4:30 – 7:15

Grading

Homework#1 (Face Recognition) Assignment 15%

Homework#2 (Special Topics Report) Assignment 15%

Term (Team) Project (De-Identification and Re-Identification) 30%

Mid-Term 15%

Final 25%

Special Accommodations

If you are a student with a disability, please see your instructor and contact the Office of Disability Services (ODS) at (703) 993-2474. All academic accommodations *must* be arranged through ODS http://ods.gmu.edu

Academic Integrity and Honor Code

https://oai.gmu.edu/mason-honor-code/full-honor-code-document/